Food web Subteam Meeting
Jan. 21, 2014

DFW - Rosemary Hartman, Alice Low, Stacy Sherman, Trishelle Morris, Hildie Spautz, Dave Contreras
DWR - Betsey Wells, Heather Fuller, Peggy Lehman, Krista Hoffmann, Gardner Jones, Anitra Pawley (on phone)
SWFCA - Kelsey Cowin
ESA - Ramona Swenson
Bruce Herbold

Rosemary gives an overview of the food web generalized plan.

The following are comments made by the subteam on the generalized monitoring plan

Chapter 1: Introduction

- Add how feedback will lead back to better restoration design

Chapter 3: State variables

- Add previous land use
- Look more in depth at climate impacts
- Try to incorporate what should be done (aerial photos) and how beneficial it would be to our study

Chapter 5: Monitoring Methods

- Metrics should be more descriptive
- Change "core" metrics to "____" metric
- For "core" metric consider quarterly EDNA water analysis
    - Quagga presence should be a trigger
- Need to think about which triggers are relevant to the question (ie High standing stock of phytoplankton doesn't mean there is edible food for zooplankton)

Chapter 6: Analysis

- Try to add a template or conceptual model for reporting
- If possible, try to cite similar studies.

Chapter 7: Meta-analysis on estuary- or population-wide level

- Want to incorporate comparison across sites
- Should look at this from the fat happy fish perspective

The following comments are on core, triggered, special study metrics

Core Metrics

Water Quality Comments

- What to measure: pH, subsurface irradiance, DO, temp, chl a, specific conductance, NTU
- Thing to think - you only have about an hour to get samples
- Sonde is $8000 - 10,000
- Sonde is recommended, but discrete sampling is could be used as an alternative
    - Sonde will capture variability and discrete sampling will not
    - Frequency: 1-3 sondes deployed, different hypotheses will require different sampling frequencies
    - Discrete sampling may occur on site at the beginning to capture water quality trends to determine where to deploy the sondes

Nutrients Concentrations Comments

- What to measure: Nitrate, ammonium, DON, SRP, TP
- Not recommended to measure: TKN
- Frequency: Once a month (Spring-Fall),quarterly rest of year; Replication ~10-20% this will increase cost
- Trigger could increase sampling to full tidal cycle

Particulate Organic Carbon Concentrations Comments

- What to measure: TOC, DOC
- Frequency: Once a month (Spring-Fall), Replication ~10-20% this will increase cost

Monitoring group name change: Primary Production to Primary Producers

Epiphytic/Epibenthic Organism Biomass Comments

- Should start measuring biomass and if feasible do productivity
- Frequency: May and October
    - The fall can be dropped if samples are uninteresting
- For epibenthic organism methods are still needed (shrimp, gammarid)-Katherine Boyer or Cindy Messer may have ideas on how to capture critters that swim away
- It was suggested that organisms be identified down to Family

Zooplankton Biomass and Community Composition Comments

- Frequency: At least Jan-Jun, and when at-risk fish are present

Benthic Biomass and Community Composition Comments

- Frequency: May and October

Fish Diet Comments

- Should be special studies

Triggered monitoring metrics

Phytoplankton Community Composition Comments

- Trigger could be when Chl a ≤ 10 micrograms per liter or comparison at other site(s)
- Fluoroprobe not a recommended method

Microcystis or Hazardous Aquatic Biomass Comments

- Trigger: Visual observation of aphanizomenon or microcystis
- Microcystis blooms stop when temperature < 18^{o} C
- Frequency: During Aug-Sept with hand tow, every two weeks
- In Oct, they are microscopic and more dangerous, but harder to sample

Microcystis Toxin Concentration Comments

- Test when it's visual
- Frequency: Aug-Sept
- Test strips are available to measure toxicity
- This trigger will likely be combined with Microcystis biomass

Microzooplankton Biomass and Community Composition Comments

- Should be put into special studies

Birds and Otters Comments

- Should be a special study where the results can make it a trigger study

Higher Function/Special Studies Metrics

Primary Productivity Comments

- Should be a trigger by low biomass
- Machines that measure primary productivity cost $30,000-40,000
- A much cheaper alternative to calculate primary productivity = O2 + chl a + yield

Benthic Grazing Rates Comments

- Clam biomass to size relation changes every month

Competition rates Comments

- Delete this metric – too difficult to do

Change "Predation Rates" to "Predation Occurrence Rate"